



Technical paper: Challenges and opportunities for mitigation in the agricultural sector

UNFCCC Secretariat
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AWG-LCA workshop on opportunities and challenges for mitigation in the agricultural sector
Bonn, Germany - 4 April 2009



Context

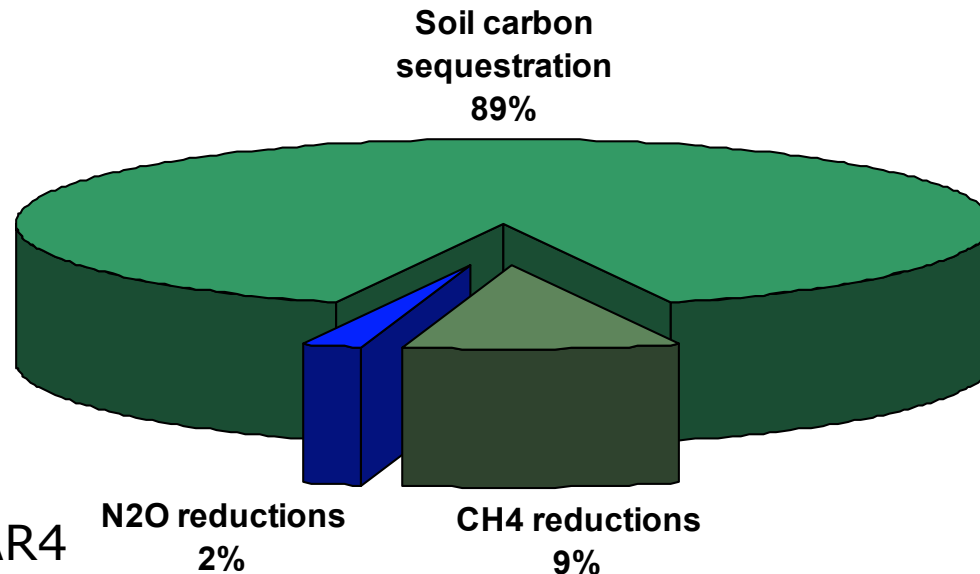
- ◆ Agriculture represents a primary source of livelihood for more than one third of the world's total workforce
- ◆ High emissions
 - 10–12 % of the total global anthropogenic GHG emissions or about 6.8 Gt of CO₂ eq per year.
- ◆ High emissions growth rates
 - About 17 per cent between 1990 and 2005
 - Projected to increase further in the coming decades



Mitigation potential

- ◆ High technical mitigation potential (5.5–6 Gt CO₂ eq per year by 2030), but significantly lower economic potential (depending on C price)
 - **Soil carbon sequestration:** cropland and grazing land management, restoration of organic soils and degraded lands, bioenergy and water management
 - **CH₄ reductions:** improvements in rice management, and in livestock and manure management
 - **N₂O reductions** from soils (mainly crop management)

Note: sectors in AR4 are not the same as IPCC GLs sectors



Source: IPCC AR4



Mitigation areas addressed

- ◆ Emissions from livestock
 - CH₄ emissions from enteric fermentation
 - CH₄ and N₂O emissions from manure management

- ◆ Emissions from crops and soils
 - Pasture management (improved grazing land management and agroforestry)
 - Reduced or no tillage
 - Use of nitrification inhibitors and optimum amount and timing of fertilizer application
 - CH₄ emissions from rice cultivation
 - Emissions associated with conversion of land



Key challenges

- ◆ Limit or maximum capacity of soils to store C
- ◆ Risk of losing carbon stored (e.g. because of a change in soil carbon management)
- ◆ Difficulties in establishing a baseline
- ◆ High level of uncertainty in emissions estimates and lack of information for their assessment
- ◆ Other barriers:
 - high transaction costs,
 - competitiveness,
 - high costs for measurement and monitoring of emission reductions,
 - availability of investment capital,
 - technological needs,
 - traditional practices



Opportunities

- ◆ Although not one size fits all, there are synergetic effects of climate-related action in agriculture
 - Alleviating poverty
 - Sustainable development
 - Food security
 - Energy security
 - Improvement of environmental quality



Further work/considerations

- ◆ Priority mitigation activities
- ◆ Links between national, regional and global actions
- ◆ Resources and mechanisms required for 'greening' agricultural production
- ◆ Arrangements to ensure delivery of expected emission reductions and promote implementation of best practices
- ◆ Enhancing existing (or create new) instruments and mechanisms based on market approaches
- ◆ Technology transfer, technology deployment and enhancement of R&D
- ◆ Measuring, reporting and verifying emissions



Thank you

For more information, please visit the UNFCCC web site:

<http://unfccc.int>

Technical paper available on-line:

<http://unfccc.int/resource/docs/2008/tp/08.pdf>